Interim Peer Review Guidelines
Inventory and Monitoring Program

Rationale

The National Park Service is committed to promoting the conduct of high quality projects in national parks as part of the Inventory and Monitoring Program. An essential element of any science or research program is peer review. Peer review of proposals, study plans, monitoring plans, sampling protocols, publications, reports, and other products improves the quality of scientific research by incorporating the knowledge of other expert scientists and by ensuring that studies conducted can withstand the rigorous scrutiny of other scientists. The credibility of scientific research is enhanced by conveying to other scientists, policy-makers, managers, and the public the knowledge that the work conducted has met accepted standards of rigor and accountability. Effective peer review can help foster research that is fundamentally sound and that increases the broad acceptance of management decisions based on that science.

Sources and Relationship to other Guidance

Peer review guidance exists in several places, but a single, updated synopsis is needed as the Inventory and Monitoring Program is rapidly increasing the amount of scientific work occurring in our parks. The document drafted here is intended to serve as interim guidance to the Inventory and Monitoring Program while the NRAG Peer Review Work Group continues the effort to develop such guidance for the overall natural resource program. Material for this document is drawn from the Alaska Region Peer Review Guidelines (2002) and other materials summarized by John Dennis in a June 29, 2001 memo to Mike Soukup.

Framework for Review

Scientific work within the NPS includes both basic and applied research, as well as inventory and monitoring of physical and biological resources. Work within the parks covers a broad range of scientific disciplines. In addition, such work is conducted by scientists from many different organizations, ranging from park personnel to other government and academic scientists. Although all scientific work benefits from review, not all work warrants the same level or frequency of review. Peer review can be time-consuming and expensive. One purpose of these guidelines is to describe the kinds of review that are appropriate for different kinds of I&M activities and products.

Some form of peer review is desirable at both the beginning and at the end of scientific projects, and will also be appropriate for certain interim products (Network Vital Signs Monitoring Plans, for example). Review at the proposal or study plan stage can ensure that the project addresses a relevant and significant question, that the work has clear and measurable objectives, and that the methods proposed will generate the kind of data appropriate for addressing the objectives. Review of the final work product assesses the quality of the work performed, the interpretations of the results, and the conclusions drawn from the study. Review

of interim products ensures that progress toward final products is acceptable and is progressing according to the approved plan.

Definitions

For the purposes of this document, peer review refers to scientific peer review, defined as the evaluation of scientific proposals, programs, publications, and other products by qualified scientific or technical experts. Internal peer review is a review by individuals within the National Park Service who have no involvement with respect to the work product being evaluated. External peer review is an assessment by independent experts from outside the National Park Service. Blind review occurs when the identity of the reviewers is not made known to the authors until after the needed revisions are completed.

The technical and scientific peer review process outlined here does not eliminate the need for review of proposals, study plans, monitoring plans, or protocols by management officials. Management review procedures are not included in these guidelines, but it is recommended that similar procedural guidelines be followed to incorporate review and input of park managers where appropriate to improve the quality and utility of scientific work for park management.

Subjects of Peer Review

In general, any scientific project that receives financial, logistical, or personnel support from the NPS Inventory and Monitoring Program should involve peer review as part of the overall quality assurance for the project. When completed, reports or manuscripts that result from the project should also be peer reviewed. In the case of projects done with other agencies or institutions that have their own peer review process, NPS review may be coordinated with that of the collaborating agency.

Coordination of Peer Review

Coordination of the peer review must be accomplished in a manner that ensures objectivity and an administrative record of the review process should be kept. In most cases the person responsible for overseeing the peer review will be the Regional I&M Coordinator. In many cases, however, the Regional I&M Coordinator should seek alternates to manage the peer review in order to ensure quality and maintain impartiality, thereafter functioning as the "Coordinator-in-Chief" of the review process. The Regional I&M Coordinator may delegate this responsibility to Network Coordinators in those instances where the number of networks or volume of projects precludes such a centralized approach. An alternate must be designated in cases where the Regional or Network Coordinators cannot maintain objectivity, such as when they are the author's supervisor or are otherwise unable to remain impartial. In other cases, a subject matter expert should be asked to manage the review to ensure that the most qualified reviewers are selected and that scientific rigor is maintained throughout the review process. In all cases, the review files will be returned to the Regional I&M Coordinator upon completion of the review. In addition, the review should be closely coordinated with Regional Chief Scientists or Science Advisors when such positions exist.

General Peer Review Procedures

A formal process is required for peer review to be successful and effective. Informal advice sought from peers or colleagues, although helpful and should be encouraged, does not constitute peer review. The individual managing the peer review shall maintain files for projects

that require peer review and shall sign an approval form verifying that peer review requirements have been satisfied (Attachment 2). Such files will serve as the administrative record of the review. This administrative record shall include the original review document, instructions to reviewers, reviewer comments, guidance to the authors on responding to reviewer comments, documentation as to how the authors responded to comments, the final copy of the review document, and the approval form.

Reviews should be conducted by true scientific peers. Those asked to serve as peer reviewers should have expertise in the research area and should be in a position to independently and objectively comment on the merit of the work. To be independent and objective, reviewers must not be involved in or have any vested interest in the project under review, nor should they be employees or supervisors of any proposed project personnel or product authors. The appropriate use of reviewers from outside the National Park Service will help to ensure the independence of a locally managed peer review.

All proposals, study plans, monitoring plans, sampling protocols, final reports, publications, and other products of the I&M program should be reviewed by the Regional I&M Coordinator and at least two additional reviewers. At least one reviewer must come from outside the National Park Service for all study plans and final reports. At least one of the reviewers should be a statistician or a scientist with strong quantitative knowledge and skills if the review document includes considerable data analysis or sampling design material. Publications in peer-reviewed journals will be considered as adequately peer reviewed. Examples of the type of review required for various I&M products are given in Table 1. The Regional I&M Coordinator shall be responsible for selecting appropriate reviewers, ensuring adequate time for review, and for advising authors as to needed revisions. The Regional I&M Coordinator will take comments raised by reviewers into consideration and develop written guidance to the authors summarizing the comments and outlining needed revisions. Although they may choose to remain anonymous, reviewers will be encouraged to sign their reviews.

Proposals, protocols or study plans that are not substantially different from previously conducted studies in the region and which have previously undergone review need not, but may at the discretion of the Regional I&M Coordinator, undergo additional review.

Table 1. Types of Review Required for I&M Activities and Products

Type of Study Plans and Reports	TYPE OF REVIEW REQUIRED
Annual Reports for Specific Protocols or Projects	Internal review coordinated by the Network.
Inventory Project Reports	External, blind review by at least 2 subject area experts, including a statistician.
Analysis and Synthesis reports – trends	External, blind review by at least 3 subject area experts, including a statistician.
Program and Protocol Review reports	External, blind review by at least 3 subject area experts, including a statistician.
Scientific journal articles and book chapters	Follows journal's policies.
Symposia, workshops and conferences	Follows various professional society procedures
State of the Parks Report	
Proposals	Varies depending on complexity of project. Minimally, an internal review coordinated at the network level is required.
Protocols and Study Plans	External, blind review by at least 3 subject area experts, including a statistician.
Vital Signs Monitoring Plans – Phase 1	Internal review coordinated at regional level by reviewers with some familiarity with the NPS Vital Signs Monitoring Program.
Vital Signs Monitoring Plans – Phase 2	External, blind review coordinated at the regional level, by at least 3 subject area experts, including a statistician.
Vital Signs Monitoring Plans – Phase 3	External, blind review coordinated at the national level, by at least 3 subject area experts, including a statistician.

* Copy should be provided to Regional I&M Coordinator and appropriate Servicewide I&M Program Staff in cases where approval is delegated to lower levels.

ATTACHMENT 1. EXAMPLE QUESTIONS FOR PROPOSAL EVALUATION AND REVIEW

Taken from "Natural Resource Management Proposals", a document developed by Team Number VIII, a working group formed in 1992 under the framework of The Strategic Plan for Improving the Natural Resource Program of the National Park Service

The peer review coordinator should consider the following factors as he/she solicits peer review comments or prepares rating criteria. Since review is time consuming, providing a means for reviewers to apply scores may be most expedient. It will be most helpful to seek narrative comment on only the most important areas to save valuable review time and effort.

- Statement of the problem: Is the problem and its relevance to park management clearly stated?

- Objectives and hypotheses: Are project objectives or research hypotheses clearly stated and logically derived from the problem statement?

- Literature review: Is the literature review adequate and does it reflect current scientific understanding of the issue?

- Research and monitoring design: For research and monitoring activities, is the sampling and experimental design appropriate and sufficient to meet study objectives and ensure statistical validity?

- Field and laboratory methodology: Are field and laboratory methodologies clearly and completely described and sufficient to meet project or study objectives?

- Statistical analysis: Are analytical and statistical procedures sufficiently identified and appropriate?

- Project management: Is planning and project management (e.g., staffing, budgeting, scheduling) clearly described, logical, and likely to ensure that the project objectives will be met?

- Communication of results: Are reports, publications, technology transfer, and other means to share results adequately identified and programmed?

- Project costs: Are the funds requested for each budget category and for each project phase reasonable and acceptable?

- Investigator's or Manager's qualifications: Does the principal investigator or project manager have a level of recognized authority, experience, and past record of success in this field to adequately accomplish project objectives?

- Interdisciplinary aspects: Is the combination of scientific and technical disciplines proposed sufficient to adequately measure and test the hypothesis or to meet project objectives at hand?

- Overall: In general, is the proposal presented clearly and will it produce scientifically sound results?

ATTACHMENT 2. EXAMPLE REVIEW FORM

NAME OF NETWORK OR PARK(S):_____

TITLE and DATE OF REVIEW DOCUMENT: _____
_____
_____

NAME/AFFILIATION OF PERSON REQUESTING REVIEW*: _____
_____
*Note that this would ordinarily be the Network Coordinator, but may be a park contact or principal investigator.

DATE OF SUBMITTAL: _____

APPROVED [ ] NOT APPROVED [ ]

Peer review of the above named document has been completed. Assurance is hereby given that the document and its review have met the National Park Service Inventory and Monitoring Program Peer Review Guidelines if the document is approved. A record of the review comments and revision strategy is on file.

NAME and TITLE of PEER REVIEW COORDINATOR*: _____
_____
*Note that this would ordinarily be the Regional I&M Coordinator, but may be an alternate if so specified under the Peer Review Guidelines.

_____ _____
Signature of Peer Review Coordinator Date